

Interview with Ken Keating

April 2007

When he came to Energy Efficiency in 1982, Ken Keating took over for Steve Wright and began to develop an evaluation function in conservation. In 2007 Ken stated he's most proud of "Establishing evaluation as a solid basis for the reliability of conservation savings as a resource." Ken retired from BPA in April after 25 years. Before losing Ken to retirement, we sat for the interview that follows:

Willingness to pay, measure life, lost opportunities, total resource cost ratio -- these are phrases that cause stress or eyes to glaze over. You thrive on these concepts.

Why is willingness to pay important?

WTP is a measure of how much of BPA ratepayer funds you want to pay for a measure. It is much different than how much the savings are worth to the BPA system or the region (which are also two different numbers). By definition the value of a measure is equal to the full avoided cost. Yet most measures are worth more in avoided costs than they cost to buy and install - sometimes multiple times more valuable.

Paying the full value is a bad idea for theoretical and practical reasons: theoretically, if we pay the full value and it falls one kWh short in actual achievement, it would by definition not be cost-effective and would have made more sense to buy the alternative resource. Practically speaking it has no political legs to pay some ratepayers large amounts of other ratepayers' money for doing something that saves them money too. And the political cost of being seen as paying twice what it costs to do is clear.

BPA tries to balance many factors such as market barriers, actual incremental cost, non-energy benefits, the life of the measure, and whether it is a lost opportunity, in addition to how the measure fits with customer programs. Balancing is always a judgment call, and we have to do it under the cost constraints imposed by the Agency.

What is leveled cost?

Spreading the cost of the kWh hour over the life of the measure and expressing it in today's dollars (net present value of the inflation adjusted cost per kWh). This is not a cost-effectiveness test, but a way to express a cost that can be compared to another cost spread over the same length of time to make a cost-effectiveness determination. In the energy efficiency case that comparison is to the cost of energy purchased in the market over the same length of time. Because each measure and end use has a different value for its load shape, there really isn't one value that can be used for "all" conservation. The total resource cost (TRC) ratio is a more appropriate model to use in these circumstances.

What is cost effectiveness?

In this region something is cost-effective if it is forecast to cost less than the next available resource taking into account all costs and benefits, plus the 10 percent credit for conservation that was written into the Pacific Northwest Electric Power Planning and Conservation Act of 1980 (Regional Act).



What is total resource cost ratio?

The ratio of the net present value of the benefits (over the life of the measure, considering the time of day and time of year load shape and the avoided cost of market power) divided by the net present value of the incremental energy efficiency related costs.

The values also include the transmission & distribution (T&D) loss savings, the value of deferred T&D upgrade investments, and the 10 percent Regional Act adder. Anytime the ratio is below 1.0, by definition it makes more sense for the region to buy the next available alternative resource -- wind, gas, coal, etc.

What is the measure life?

Measure life is defined as the median value of the effective useful life (EUL) of the measure. This means the length of time until half the measures are no longer in service and providing savings and half still are. This is different than the average life

(usually lower) and very, very, different than how long the measure could last in a laboratory test.

What are lost opportunities?

Lost opportunities are cost-effective conservation measures that need to be done at a particular time (such as during construction, renovation, or replacement or burn-out). Otherwise, the savings will be totally lost or unable to be captured later due to physical problems or costs that would be too high.

What are market barriers?

The obstacles a technology faces in the market that keep it from its full economic deployment. Something that otherwise should be widely used because it is very cost-effective, but is not due to lack of information, lack of certainty about the savings, lack of capital, lack of availability, lack of features that are otherwise desirable, etc. First cost is often called a market barrier, but at a theoretical level that isn't correct, since plenty of products with higher first cost than their competitors are successful in the market - Lexus and BMW cars, Plasma TVs, I-Pods - if they have features that consumers value.

What is market transformation?

Creating a lasting efficiency change in the market such that utility interventions - geared to help overcome market barriers - are no longer required to maintain the competitive position in the market. Tom Eckman likes to say that we have market transformation when the inefficient alternative is illegal, unprofitable, or unavailable.

What are deemed measures and calculators?

Deemed measures are those measures that we can estimate savings per unit without new analysis, because of the history of measured results and replicability of the savings.

Deemed calculators should be avoided. They are defined as calculators that directly determine a credit or reimbursement from savings based on assumptions that aren't pre-approved or capable of being overseen and changed after the fact.

Your focus over the years has been energy evaluation, both process and impact.

Why is evaluation important?

At its most basic level, evaluation verifies in the field the assumptions that were made in program planning - assumptions that include everything from savings to consumer behavior, and program operation. Without evaluation, programs are driving blind. Without independent feedback and focused efforts to test assumptions, programs will continue to miss opportunities. Without evaluation, programs will not take into account the changes around them.

What are essential features to ensure a quality evaluation?

Access to good data and a clear idea of the metric the evaluation is examining.

How does BPA's evaluation function compare with that of others?

BPA's evaluation function has been mostly inactive for many years. The Northwest Energy Efficiency Alliance (Alliance), the Energy Trust of Oregon, Puget Sound Energy, and utilities in California, New England and New York have been much more aggressive recently in evaluating programs. BPA currently picks and chooses its opportunities for evaluation.

You've worked closely with the Northwest Power and Conservation Council (Council) and the Alliance. What are the most impressive achievements of the Council?

The Council has provided a consistent and rigorous underpinning in their planning process that provides the unquestionable basis for conservation as the best economic choice for the region.

What Alliance achievements come to mind?

The Alliance has grown from an idea into a very important provider of direct and indirect energy savings. They sponsored measures that were not cost-effective and turned them into very cost-effective products. They target specific strategic niches and highly leverage their investments. They're incredibly successful on a portfolio basis.

What about the role of the Regional Technical Forum?

The RTF is still maturing. It provides a forum for discussion and debate over energy savings. It provides a legitimating function for the Alliance savings, IOU savings before their commissions, and for BPA's savings claims.

Thank you, Ken, and best wishes from the Energy Efficiency staff. We hope our paths cross your path in the future.

-- Becky Clark (503) 230-3158